

REMARKS

Claims 1-17 are pending in the application. Claims 1 and 12 are currently amended. Applicant respectfully requests for allowance of all the pending claims based on following discussions.

Rejections under 35 USC 102/103

Claims 1-2 and 4-14

Claims 1-2 and 4-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,309,532 to Tran et al. (hereinafter referred to as “Tran”), evidenced by U.S. Patent No. 6,071,484 to Dingman, Jr. et al. (hereinafter referred to as “Dingman”).

A. The rejections against claims 1-2 and 4-14 under 35 USC 102(b) are improper.

A claim is anticipated under section 102 only if each and every element as set forth in the claim is found, either expressly or inherently described, in a **single** prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628-631 (*Fed. Cir.* 1987). Examiner cites two prior art references Tran and Dingman in rejecting claims 1-2 and 4-14 under 35 USC 102(b). This is improper as it is inconsistent with the case law. Thus, Applicant respectfully requests that the rejections against claims 1-2 and 4-14 under 35 USC 102(b) be withdrawn.

B. Claims 1-2 and 4-14 are patentable over the Tran in view of Dingman under 35 USC 103(a).

Independent claim 1 is directed to a method for the treatment of gaseous chemical waste which comprises the steps of: continuously circulating water through an essentially closed loop incorporating a gas scrubbing unit and an ion absorption unit comprising a water permeable ion absorbing means; feeding exhaust gas or a reaction product thereof to the gas scrubbing unit for dissolution in the circulating water thereby to form an aqueous solution containing ionic species derived from the exhaust gas; continuously bringing the circulating water into contact with the ion absorbing means in the ion absorption unit while applying an electrical potential across the thickness of the ion absorbing means and removing from the ion absorption unit a more concentrated aqueous solution of the ionic species; and continuously adding to the closed loop a quantity of water corresponding to the quantity of aqueous solution of the ionic species removed from the ion absorption unit. As amended, independent claim 1 now includes additional language *"wherein the added water circulates through the ion absorption unit simultaneously when the electrical potential is applied to the ion absorbing means for removing from the ion absorption unit the more concentrated aqueous solution of the ionic species."*

Tran fails to teach the added claim language *"wherein the added water circulates through the ion absorption unit simultaneously when the electrical potential is applied to the ion absorbing means for removing from the ion absorption unit the more concentrated aqueous solution of the ionic species."* Tran teaches a system that deionizes an aqueous solution with cell 30, and stores the purified solution in product tank 160. *See, FIG. 5.* As cell 30 deionizes, contaminants accumulate in it, thereby reducing the effectiveness and efficiency of deionization. *See, col. 16, lines 23-27.*

When the effectiveness and efficiency of deionization drop to a certain level, the deionization process is stop and a regeneration process is activated to clean up the contaminants accumulated in cell 30. *See, col. 16, lines 61-64.* For this purpose, power supply 117 is disconnected, reduced, or polarity reversed, and regeneration tank 170 is fluidly connected to pump 152 via recycle line 162. *See, col. 16 line 65 – col. 17 line 3.* As illustrated in FIG. 6, the deionization and regeneration are performed alternately, but never simultaneously. This clearly differs from the claimed invention.

Dingman does not cure the deficiency of Tran. It is noted that Dingman is cited for its teaching of a “*gas scrubbing unit*,” but not for any disclosure of how to coordinate and manage the step of adding water to a chemical waste treatment system, and the step of removing ions from a solution to be treated. *See, Office Action of January 2, 2009, page 3.* There has been no statement or reason provided in the record establishing that Dingman does in fact teach the claim language.

It would not have been obvious for a person skilled in the art to modify Tran by performing the deionization and regeneration simultaneously. During deionization, an electrical potential is applied to cell 30, thereby creating an electrical field between two adjacent electrodes for absorbing ions in the solution flowing through them. Yet, regeneration is a process that forces the electrodes to release the absorbed ions. The two processes as applied in Tran are reverse in nature, and cannot be reasonably performed simultaneously.

As such, claim 1 is patentable over Tran in view of Dingman under 35 USC 103(a). Independent claim 12, as amended, includes an added limitation “*wherein the added water circulates through the ion absorption unit simultaneously when the*

electrical potential is applied to the ion absorbing means for removing from the ion

absorption unit the concentrated aqueous solution of ionic species.” For reasons

discussed above, claim 12 is patentable over Tran in view of Dingman under 35 USC 103(a), either. Accordingly, claims 2, 4-11, 13, and 14 that depend from independent claim 1 or 12 and include all the limitation recited therein are also patentable over the cited references under section 103.

Claims 3, 15, 16, and 17

Claims 3, 15, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran in view of U.S. Patent No. 6,187,162 to Mir, U.S. Patent No. 5,045,291 to Keller, U.S. Patent No. 5,350,523 to Tomoi et al., U.S. Patent No. 4,795,565 to Yan, and U.S. Patent No. 4,141,828 to Okada et al.

As discussed above, independent claims 1 and 12 are patentable over the Tran and Dingman under section 103. Accordingly, claims 3, 15, 16, and 17 that depend from claim 1 or 12 and include all the limitations recited therein are patentable over the cited references under section 103, as well.

CONCLUSION

Applicant has made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicant does not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee to deposit account number 50-4244.

Respectfully submitted,

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